

(Adopted October 9, 1998)(Amended May 2, 2003)  
(Amended December 5, 2008)(Pending Amendment April 6, 2018)

**PROPOSED  
AMENDED  
RULE 1469.      HEXAVALENT CHROMIUM EMISSIONS FROM CHROMIUM  
ELECTROPLATING AND CHROMIC ACID ANODIZING  
OPERATION**

(a) Purpose

The purpose of this rule is to reduce hexavalent chromium emissions from facilities that perform chromium electroplating or chromic acid anodizing operations and other activities that are generally associated with chromium electroplating and chromic acid anodizing operations.

(b) Applicability

This rule shall apply to the owner or operator of any facility performing chromium electroplating or chromic acid anodizing.

(c) Definitions

For the purposes of this rule, the following definitions shall apply:

- (1) ADD-ON AIR POLLUTION CONTROL DEVICE means equipment installed in the ventilation system of any Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s) for the purposes of collecting and containing chromium emissions from the tank(s).
- (2) ADD-ON NON-VENTILATED AIR POLLUTION CONTROL DEVICE means equipment installed on any Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s) for the purposes of collecting, containing, and eliminating chromium emissions (e.g., merlin hood cover, tank cover) that does not utilize a ventilation system.
- (3) AIR POLLUTION CONTROL TECHNIQUE means any method, such as an add-on air pollution control device, add-on non-ventilated air pollution control device, mechanical fume suppressant or a chemical fume suppressant, that is used to reduce chromium emissions from one or more Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s).
- (4) AMPERE-HOURS means the integral of electrical current applied to an electroplating tank (amperes) over a period of time (hours).
- (5) ANNUAL PERMITTED AMPERE-HOURS means the maximum allowable chromium electroplating or anodizing rectifier production in ampere-hours, on an annual basis as specified in the Permit to Operate,

Permit to Construct, or Compliance Plan for the facility.

- (6) APPROVED CLEANING METHOD means cleaning using a wet mop, damp cloth, low pressure spray nozzle, wet cleaning, or using a high efficiency particulate arrestor (HEPA) vacuum.
- (7) ASSOCIATED PROCESS TANK means any tank in the process line of a Tier I, Tier II, or a Tier III Hexavalent Chromium Tank.
- (8) AREA SOURCE means any stationary source of hazardous air pollutants that is not a major source as defined in this rule.
- (9) BASE MATERIAL means the metal, metal alloy, or plastic that comprises the workpiece.
- (10) BARRIER means a physical divider that prevents air flows from influencing the collection efficiency of an add-on air pollution control device, and also prevents the migration of dust generated from buffing, grinding, and polishing activities to enter tank process areas.
- (11) BATH COMPONENT means the trade or brand name of each component in trivalent chromium electroplating baths, including the chemical name of the wetting agent contained in that component.
- (12) BUILDING ENCLOSURE means a permanent building, enclosed with a floor, walls, and a roof to prevent exposure to the elements, (e.g., precipitation, wind, run-off), with limited openings to allow access for people, vehicles, equipment, or parts that is free of breaks or deterioration that could cause or result in fugitive emissions.
- (13) CHEMICAL FUME SUPPRESSANT means any chemical agent that reduces or suppresses fumes or mists at the surface of an electroplating or anodizing bath; another term for fume suppressant is mist suppressant.
- (14) CHROMIC ACID means the common name for chromium anhydride ( $\text{CrO}_3$ ).
- (15) CHROMIC ACID ANODIZING means the electrolytic process by which an oxide layer is produced on the surface of a base material for functional purposes (e.g., corrosion resistance or electrical insulation) using a chromic acid solution. In chromic acid anodizing, the part to be anodized acts as the anode in the electrical circuit, and the chromic acid solution, with a concentration typically ranging from 50 to 100 grams per liter (g/L), serves as the electrolyte.
- (16) CHROMIUM ELECTROPLATING OR CHROMIC ACID ANODIZING TANK means the receptacle or container in which hard or

decorative chromium electroplating or chromic acid anodizing occurs.

- (17) COMPOSITE MESH-PAD SYSTEM (CMP) means an add-on air pollution control device typically consisting of several mesh-pad stages. The purpose of the first stage is to remove large particles. Smaller particles are removed in the second stage, which consists of the composite mesh pad. A final stage may remove any re-entrained particles not collected by the composite mesh pad.
- (18) DECORATIVE CHROMIUM ELECTROPLATING means the process by which a thin layer of chromium (typically 0.003 to 2.5 microns) is electrodeposited on a base metal, plastic, or undercoating to provide a bright surface with wear and tarnish resistance. In this process, the part(s) serves as the cathode in the electrolytic cell and the solution serves as the electrolyte. Typical current density applied during this process ranges from 540 to 2,400 Amperes per square meter ( $A/m^2$ ) for total electroplating times ranging between 0.5 to 5 minutes.
- (19) DRAGOUT means fluid containing hexavalent chromium that drips off from parts being electroplated or anodized, or from equipment used to remove electroplated or anodized parts from a tank.
- (20) EARLY EDUCATION CENTER means any public or private property, used for purposes of education as defined as an Early Learning and Developmental Program by the U.S. Department of Education, but does not include any property in which education is primarily conducted in private homes. Early education center includes any building or structure, playground, athletic field, or other areas of early education center property.
- (21) ELECTROPLATING OR ANODIZING BATH means the electrolytic solution used as the conducting medium in which the flow of current is accompanied by movement of metal ions for the purpose of electroplating metal out of the solution onto a workpiece or for oxidizing the base material.
- (22) EMISSION LIMITATION means, for the purposes of this rule, the concentration of total chromium allowed to be emitted expressed in milligrams per dry standard cubic meter (mg/dscm), or the allowable surface tension expressed in dynes per centimeter (dynes/cm) for decorative chromium electroplating and chromic acid anodizing tanks; and the milligrams of hexavalent chromium per ampere-hour (mg/amp-

hr) of electrical current applied to the electroplating tank for hard or decorative chromium electroplating tanks or chromic acid anodizing tanks, or mass emission rate.

- (23) ENCLOSED STORAGE AREA is any space or structure used to contain material that prevents its contents from being emitted into the atmosphere.
- (24) ENCLOSURE OPENING is any opening such as passages, doorways, bay doors, and windows in a building enclosure. Stacks for add-on air pollution control devices subject to this rule or stacks that exclusively vent products of combustion from tank heaters or burners are not considered enclosure openings.
- (25) EXISTING FACILITY means a facility that is in operation before October 24, 2007.
- (26) FACILITY means the major or area source at which chromium electroplating or chromic acid anodizing is performed and/or any source or group of sources or other air contaminant-emitting activities which are located on one or more contiguous properties within the District, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control), or an outer continental shelf (OCS) source as determined in 40 CFR Section 55.2. Such above-described groups, if noncontiguous, but connected only by land carrying a pipeline, shall not be considered one facility. Sources or installations involved in crude oil and gas production in Southern California Coastal or OCS Waters and transport of such crude oil and gas in Southern California Coastal or OCS Waters shall be included in the same facility which is under the same ownership or use entitlement as the crude oil and gas production facility on-shore.
- (27) FIBER-BED MIST ELIMINATOR means an add-on air pollution control device that removes contaminants from a gas stream through the mechanisms of inertial impaction and Brownian diffusion. This device is typically installed downstream of another control device, which serves to prevent plugging, and consists of one or more fiber beds. Each bed consists of a hollow cylinder formed from two concentric screens; the fiber between the screens may be fabricated from glass, ceramic, plastic, or metal.

- (28) FOAM BLANKET means the type of chemical fume suppressant that generates a layer of foam across the surface of a solution when current is applied to that solution.
- (29) FREEBOARD HEIGHT means the vertical distance from the tank bath contents, including liquid or foam, to the lip of the tank with parts and equipment submerged in the tank.
- (30) FRESH WATER means water, such as tap water, that has not been previously used in a process operation or, if the water has been recycled from a process operation, it has been treated and meets the effluent guidelines for chromium wastewater.
- (31) FUGITIVE EMISSIONS means emissions generated from the operations at the owner or operator's facility, including solid particulate matter, gas or mist, potentially containing hexavalent chromium that becomes airborne by natural or man-made activities.
- (32) HARD CHROMIUM ELECTROPLATING or INDUSTRIAL CHROMIUM ELECTROPLATING means a process by which a thick layer of chromium (typically greater than 1.0 microns) is electrodeposited on a base material to provide a surface with functional properties such as wear resistance, a low coefficient of friction, hardness, and corrosion resistance. In this process, the part serves as the cathode in the electrolytic cell and the solution serves as the electrolyte. Hard chromium electroplating process is performed at current densities typically ranging from 1,600 to 6,500 A/m<sup>2</sup> for total electroplating times ranging from 20 minutes to 36 hours depending upon the desired plate thickness.
- (33) HEXAVALENT CHROMIUM means the form of chromium in a valence state of +6.
- (34) HIGH EFFICIENCY PARTICULATE ARRESTORS (HEPA) means filter(s) that are individually dioctyl phthalate tested (or equivalent) with 0.3 micron particles or smaller, and rated by the manufacturer to have a control efficiency of not less than 99.97 percent.
- (35) HIGH EFFICIENCY PARTICULATE ARRESTOR (HEPA) VACUUM means a vacuum that is both designed for the use of and fitted with HEPA filters that are free of tears, fractures, holes or other types of damage, and securely latched and properly situated in the vacuum to prevent air leakage from the filtration system.

- (36) LEAK means the release of chromium emissions from any opening in the emission collection system prior to exiting the emission control device.
- (37) LOW PRESSURE SPRAY NOZZLE means a spray nozzle capable of regulating water pressure to 35 pounds per square inch or less.
- (38) MAJOR SOURCE means any stationary source or group of stationary sources located within a contiguous area and under common control that emits, or has the potential to emit, considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.
- (39) MAXIMUM CUMULATIVE POTENTIAL RECTIFIER CAPACITY means the summation of the total installed rectifier capacity associated with the hard chromium electroplating tanks at a facility, expressed in amperes, multiplied by the maximum potential operating schedule of 8,400 hours per year and 0.7, which assumes that electrodes are energized 70 percent of the total operating time. The maximum potential operating schedule is based on operating 24 hours per day, 7 days per week, 50 weeks per year.
- (40) MECHANICAL FUME SUPPRESSANT means any physical device, including but not limited to polyballs, that reduces fumes or mist at the surfaces of an electroplating or anodizing bath by direct contact with the surface of the bath.
- (41) MODIFICATION means either:
  - (A) any physical change in, change in method of operation of, or addition to an existing permit unit subject to this rule that requires an application for a permit to construct and/or operate and results in an increase in hexavalent chromium emissions. Routine maintenance and/or repair shall not be considered a physical change. A change in the method of operation of equipment, unless previously limited by an enforceable permit condition, shall not include:
    - (i) an increase in the production rate or annual ampere-hours, unless such increases will cause the maximum design capacity of the equipment to be exceeded, or will cause a facility to be subject to a different requirement in Table 1 of paragraph (h)(2); or
    - (ii) an increase in the hours of operation; or

- (iii) a change in ownership of a source;
  - (B) the addition of any new chromium electroplating or anodizing tank at an existing facility which increases hexavalent chromium emissions; or
  - (C) the fixed capital cost of the replacement of components exceeding 50 percent of the fixed capital cost that would be required to construct a comparable new source.
- (42) METAL REMOVAL FLUID means a fluid used at the tool and workpiece interface to facilitate the removal of metal from the part, cool the part and tool, extend the life of the tool, and to flush away metal chips and debris, but does not include minimum quantity lubrication fluids used to coat the tool work piece interface with a thin film of lubricant and minimize heat buildup through friction reduction. Minimum quantity lubrication fluids are applied by pre-coating the tool in the lubricant, or by direct application at the tool work piece interface with a fine mist.
- (43) MODIFIED FACILITY means any facility which has undergone a modification on or after October 24, 2007.
- (44) NEW FACILITY means any facility that begins initial operations on or after October 24, 2007. “New Facility” does not include the installation of a new chromium electroplating or anodizing tank at an existing facility or the modification of an existing facility.
- (45) OPERATING PARAMETER VALUE means a minimum or maximum value established for a control device or process parameter which, if achieved by itself or in combination with one or more other operating parameter values, determines that an owner or operator is in continual compliance with the applicable emission limitation or standard.
- (46) PACKED-BED SCRUBBER means an add-on air pollution control device consisting of a single or double packed-bed that contains packing media on which the chromic acid droplets impinge. The packed-bed section of the scrubber is followed by a mist eliminator to remove any water entrained from the packed-bed section.
- (47) PERFLUOROOCTANE SULFONIC ACID (PFOS) BASED FUME SUPPRESSANT means a fume suppressant that contains 1 percent or greater PFOS (CAS No. 1763-23-1) by weight.
- (48) PERMANENT TOTAL ENCLOSURE means a permanent building or containment structure, enclosed with a floor, walls, and a roof to prevent

exposure to the elements, (e.g., precipitation, wind, run-off) that has limited openings to allow access for people and vehicles, that is free of breaks or deterioration that could cause or result in fugitive emissions, and has been evaluated to meet the design requirements set forth in U.S. EPA Method 204, or other design approved by the Executive Officer.

(49) RESPONSIBLE OFFICIAL means one of the following:

- (A) For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities and either:
  - (i) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars); or
  - (ii) The delegation of authority to such representative is approved in advance by the U. S. EPA Administrator.
- (B) For a partnership or sole proprietorship: a general partner or the proprietor, respectively.
- (C) For a municipality, state, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of the U.S. Environmental Protection Agency [U.S. EPA]).
- (D) For sources (as defined in this rule) applying for or subject to a Title V permit: “responsible official” shall have the same meaning as defined in District’s Regulation XXX.

(50) SCHOOL means any public or private school, including juvenile detention facilities with classrooms, used for purposes of the education of more than 12 children at the school, including in kindergarten and grades 1 through 12, inclusive, but does not include any private school in which education is primarily conducted in private homes. The term includes any building or structure, playground, athletic field, or other area of



school property, but does not include unimproved school property.

- (51) SCHOOL UNDER CONSTRUCTION means any property that meets any of the following conditions.
  - (A) construction of a school has commenced; or
  - (B) a CEQA Notice for the construction of a school has been issued; or
  - (C) a school has been identified in an approved local government specific plan.
- (52) SENSITIVE RECEPTOR means any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (k-12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. A sensitive receptor includes long term care hospitals, hospices, prisons, and dormitories or similar live-in housing.
- (53) SOURCE means any chromium electroplating or chromic acid anodizing operation and any equipment or materials associated with the selected associated air pollution control technique.
- (54) STALAGMOMETER means a device used to measure the surface tension of a solution by determining the mass of a drop of liquid by weighing a known number of drops, or by counting the number of drops obtained from a given volume of liquid.
- (55) SUBSTANTIAL USE of a permit to construct means one or more of the following:
  - (A) the equipment that constitutes the source has been purchased or acquired;
  - (B) construction activities, other than grading or installation of utilities or foundations, have begun and are continuing; or
  - (C) a contract to complete construction of the source within one year has been entered into.
- (56) SURFACE TENSION means the property, due to molecular forces, that exists in the surface film of all liquids and tends to prevent liquid from spreading.
- (57) TANK OPERATION means the time in which current and/or voltage is being applied to a chromium electroplating tank or a chromic acid anodizing tank.
- (58) TANK PROCESS AREA means the area in the facility within 30 feet of

any Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s) and any associated process tanks, or to the nearest wall in a building enclosure or permanent total enclosure, whichever is closer.

- (59) TENSIO METER means a device used to measure the surface tension of a solution by measuring the force necessary to pull a filament, plate, ring, or other District-approved object from the surface of a liquid.
- (60) TIER I HEXA VALENT CHROMIUM TANK means a tank permitted as containing a hexavalent chromium concentration of 1,000 parts per million (ppm) or greater and is not a Tier II or Tier III Hexavalent Chromium Tank.
- (61) TIER II HEXA VALENT CHROMIUM TANK means a tank permitted or operated above 140° F that meets any of the following:
  - (A) Is permitted or operates between 140-170° F with a hexavalent chromium concentration between the concentrations specified in Appendix 10; or
  - (B) Is permitted or operates above 170° F with a hexavalent chromium concentration between 100 and 200 ppm.
- (62) TIER III HEXA VALENT CHROMIUM TANK means a tank concentration containing hexavalent chromium that meets any of the following:
  - (A) Is permitted or operates between 140-170° F with a hexavalent chromium concentration specified in Appendix 10; or
  - (B) Is permitted or operates above 170° F with a hexavalent chromium concentration greater than 200 ppm; or
  - (C) Contains a hexavalent chromium concentration greater than 1,000 ppm, and uses air sparging as an agitation method or is electrolytic.
- (63) TRI VALENT CHROMIUM means the form of chromium in a valence state of +3.
- (64) TRI VALENT CHROMIUM PROCESS means the process used for electrodeposition of a thin layer of chromium onto a base material using a trivalent chromium solution instead of a chromic acid solution.
- (65) WEEKLY means at least once every calendar week.
- (66) WETTING AGENT means the type of chemical fume suppressant that reduces the surface tension of a liquid.

## (d) Requirements

- (1) The owner or operator of a chromium electroplating tank, chromic acid anodizing tank, or group of such tanks, shall equip each tank with a continuous recording, non-resettable, ampere-hour meter that operates on the electrical power lines connected to the tank or group of tanks. A separate meter shall be hard wired for each tank.
- (2) The owner or operator of a source with any chromium electroplating or chromic acid anodizing tank using a wetting agent chemical fume suppressant shall use only wetting agent chemical fume suppressants certified pursuant to subdivision (l).
- (3) No hexavalent chromium electroplating or chromic acid anodizing tank shall be air sparged when electroplating is not occurring, or while chromic acid is being added.
- (4) The owner or operator shall maintain a tank freeboard height to be within the range as specified in the most current edition (i.e. at the time the permit application was deemed complete by the SCAQMD) of the *Industrial Ventilation, A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists for any Tier II or Tier III Hexavalent Chromium Tank installed after [Date of Rule Adoption], or for any Tier II or Tier III Hexavalent Chromium Tank that undergoes a modification after [Date of Rule Adoption] involving a physical change to the dimensions of the tank.
- (5) Beginning [90 days after Date of Rule Adoption], the owner or operator of a facility that conducts chromium electroplating or chromic acid anodizing shall operate any Tier I, Tier II, or Tier III Hexavalent Chromium Tank, or any associated process tank within a building enclosure.

## (e) Requirements for Building Enclosures for Tier II and Tier III Hexavalent Chromium Tank(s)

Beginning [90 days after Date of Rule Adoption], the owner or operator of a facility that conducts chromium electroplating or chromic acid anodizing shall only operate Tier II and Tier III Hexavalent Chromium Tank(s) within a building enclosure that meets the following requirements:

- (1) The combined area of all enclosure openings, including but not limited to, any roof openings for passage of equipment or vents through which fugitive emissions can escape from the building enclosure, shall not exceed 3% of the building enclosure envelope or 5% of the building enclosure envelope of a permanent total enclosure, which is calculated as the total surface area of the building enclosure's exterior walls, floor and horizontal projection of the roof on the ground. Information on calculations for the building enclosure envelope, including locations and dimensions of openings that are counted towards the applicable building enclosure allowance, shall be provided in the compliance status reports required in paragraphs (p)(2) and (p)(3).
- (2) Ensure that any building enclosure openings that are on opposite ends of the building enclosure where air movement can pass through are not simultaneously open except during the passage of vehicles, equipment or people by closing or using one or more of the following methods for the enclosure opening(s) on one of the opposite ends of the building enclosure:
  - (A) Automated door;
  - (B) Overlapping plastic strip curtain;
  - (C) Vestibule;
  - (D) Airlock system; or
  - (E) Alternative method to minimize the release of fugitive emissions from the building enclosure that the owner or operator can demonstrate to the Executive Officer (an) equivalent or more effective method(s) to minimize the movement of air within the building enclosure.
- (3) Except for the movement of vehicles, equipment or people, close any building enclosure opening or use any of the methods listed in subparagraph (e)(2)(A) through (e)(2)(E), that directly faces and opens towards a sensitive receptor, school, or early education center that is located within 100 feet, as measured from the property line of the sensitive receptor, school, or early education center to the building enclosure opening.
- (4) Close all enclosure openings in the roof that are located within 15 feet from the edge of any Tier II or Tier III Hexavalent Chromium Tank except enclosure openings in the roof that are used to:

- (A) Allow access for equipment or parts; or
  - (B) Provide intake air or circulation air for a building enclosure that does not create air velocities that impact the collection efficiency of a ventilation system for an add-on air pollution control device.
- (5) Prohibit the operation of any powered device located on the roof of any building enclosure that pulls air from the building enclosure to the outdoor air, that is located within 30 feet from any edge of a Tier III Hexavalent Chromium Tank unless the exhaust air from the powered device is vented to an add-on air pollution control device fitted with HEPA filters.
- (6) Inspect any building enclosure at least once a calendar month for breaks or deterioration that could cause or result in fugitive emissions.
- (7) Repair any breaks or deterioration that could or results in fugitive emissions from any building enclosure within 72 hours of discovery. The owner or operator may request an extension by calling 1-800-CUT-SMOG. The Executive Officer may approve a request for an extension beyond the 72-hour limit if the request is submitted before the 72-hour time limit has expired, and the owner or operator provides information that substantiates:
  - (A) the repair will take longer than 72 hours, or the equipment, parts, or materials needed for the repair cannot be obtained within 72 hours; and
  - (B) temporary measures are implemented that ensure no fugitive emissions result from the break or deterioration.
- (8) The owner or operator shall notify the Executive Officer of any of the requirements specified in paragraphs (e)(1) through (e)(5) that cannot be complied with due to conflicting requirements set forth by the federal Occupational Safety and Health Administration (OSHA) or California Division of Occupational Safety and Health (CAL-OSHA). The written notification shall be submitted to the Executive Officer for review and approval no later than [30 days after Date of Rule Adoption] for facilities existing before [Date of Rule Adoption], and prior to initial start-up for all other facilities. The written notification shall include:
  - (A) An explanation as to why the provision(s) specified in paragraphs (e)(1) through (e)(5) is in conflict with the requirements set forth by the federal Occupational Safety and Health Administration

(OSHA) or the California Division of Occupational Safety, Health (CAL-OSHA); and

(B) Alternative compliance measure(s) that would be implemented to minimize the release of fugitive emissions to the outside of the building enclosure.

(9) The owner or operator shall implement alternative compliance measure(s) specified in paragraph (e)(8), as approved by the Executive Officer, no later than 90 days after receiving notification of approval. Compliance with approved alternative compliance measures shall constitute compliance with the applicable provisions of paragraphs (e)(1) through (e)(5).

(f) Housekeeping Requirements

An owner or operator of a chromium electroplating or chromic acid anodizing facility shall:

- (1) Store chromic acid powder or flakes, or other substances that may contain hexavalent chromium, in a closed container in an enclosed storage area when not in use;
- (2) Use a closed container when transporting chromic acid powder or flakes from an enclosed storage area to electroplating or anodizing tanks;
- (3) Clean, using an approved cleaning method, or contain using a drip tray or other containment device, any liquid or solid material that may contain hexavalent chromium that is spilled immediately and no later than one hour after being spilled;
- (4) Clean, using an approved cleaning method, surfaces within the enclosed storage area, open floor area, walkways around the Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s), or any surface potentially contaminated with hexavalent chromium or surfaces that potentially accumulate dust at least daily;
- (5) Store, dispose of, recover, or recycle chromium or chromium-containing wastes generated from housekeeping activities of this subdivision using practices that do not lead to fugitive emissions. Containers that contain chromium-containing waste material shall be kept closed at all times except when being filled or emptied;
- (6) During or within 1 hour of the end of the last operating shift for when buffing, grinding, or polishing are conducted, the owner or operator shall

clean, using an approved cleaning method, floors within 20 feet of a buffing, grinding, or polishing workstation.

- (7) Eliminate all flooring on walkways in the tank process areas that is made of fabric such as carpets or rugs where hexavalent chromium containing materials can become trapped.
- (8) Abatement of Hexavalent Chromium Prior to Cutting of Roof Surfaces  
The owner or operator shall perform the following activities when cutting of any roof surface of a building enclosure:
  - (A) Prior to cutting, affected roof surfaces areas shall be cleaned by using a HEPA vacuum; and
  - (B) All cutting activities shall be conducted in a manner that does not generate fugitive emissions using a method(s) such as constructing a temporary enclosure and HEPA vacuuming; and
  - (C) Notify SCAQMD at least 48 hours prior to the commencement of any work being performed by calling 1-800-CUT-SMOG.

(g) Best Management Practices

- (1) The owner or operator of a facility that performs chromium electroplating or chromic acid anodizing shall minimize dragout outside of the Tier I, Tier II, or Tier III Hexavalent Chromium Tank(s) by implementing the following practices:
  - (A) Facilities with automated lines shall have drip trays, or other containment equipment, installed between the Tier I, Tier II, and Tier III Hexavalent Chromium Tank(s) and its adjacent tank(s) such that the liquid does not fall through the space between tanks. Trays shall be placed such that the liquid is captured and returned to the tank(s), and cleaned such that there is no accumulation of visible dust or residue on the drip tray or other containment equipment potentially contaminated with hexavalent chromium.
  - (B) Facilities without automated lines shall handle each electroplated or anodized part, or equipment used to handle such parts, so that liquid containing chromium, including chromic acid, is not dripped outside the Tier I, Tier II, and Tier III Hexavalent Chromium Tank(s), including associated process tanks, unless the liquid is captured by a drip tray or other containment device.
- (2) The owner or operator of a facility that conducts chromium electroplating

or chromic acid anodizing operations shall not spray rinse parts or equipment that have chromium-containing liquid unless the parts or equipment are fully lowered inside a tank where the overspray and all of the liquid is captured inside the tank. The owner or operator may alternatively ensure that any liquid containing chromium is captured and returned to the tank by meeting the following conditions when rinsing above a tank:

- (A) Installing a splash guard(s) at the tank that is free of holes, tears or openings. Splash guards shall be cleaned at least daily such that there is no accumulation of visible dust or residue potentially contaminated with hexavalent chromium; or
  - (B) For tanks located within a process line utilizing an overhead crane system that would be restricted by the installation of splash guards specified in subparagraph (f)(2)(A), use a low pressure spray nozzle used and operated in a manner such that water flows off of the part or equipment and into the tank, and does not splash off parts or equipment during the rinsing process.
- (3) Maintain clear labeling of each tank within the tank process area with a tank number or other identifier, SCAQMD permit number, bath contents, maximum concentration (ppm) of hexavalent chromium, operating temperature range, any agitation methods used, and designation of whether it is a Tier I, Tier II, or Tier III Hexavalent Chromium Tank, if applicable.
  - (4) Maintain a visible indicator, such as an etched line or paint mark, on the interior of a tank subject to paragraph (d)(4) that shows inch markings in addition to the location that is within the acceptable freeboard height range as specified in the most current edition (i.e. at the time the permit application was deemed complete by SCAQMD) of the *Industrial Ventilation, A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists.
  - (5) Conduct all buffing, grinding, and polishing operations within a building enclosure.
  - (6) Install a barrier to separate the buffing, grinding, or polishing area within a facility from the chromium electroplating or chromic acid anodizing operation. The barrier may take the form of plastic strip curtains.
  - (7) Prohibit compressed air cleaning or drying operations within 15 feet of



all Tier II or Tier III Hexavalent Chromium Tank(s) unless:

- (A) A barrier separates those areas from the compressed air cleaning or drying operation such that particulates from those areas do not become airborne as a result of any compressed air cleaning or drying operation; or
- (B) Compressed air cleaning or drying operations are conducted in a permanent total enclosure.

(h) Add-on Air Pollution Control Devices and Emission Standards

- (1) The owner or operator of a chromium electroplating or chromic acid anodizing facility shall not remove or render inoperable add-on air pollution control device(s) for hard or decorative chromium electroplating or chromic acid anodizing tanks unless it is replaced by air pollution control techniques meeting a higher control efficiency than previously achieved, or an emission rate of 0.0015 milligrams per ampere-hour or less, whichever control efficiency is more effective, as demonstrated by a source test conducted pursuant to subdivision (k), or unless the facility is operating under an approved alternative compliance method pursuant to subdivision (i).
- (2) Emission Standards for Hexavalent Hard and Decorative Chromium Electroplating and Chromic Acid Anodizing Facilities
  - (A) The owner or operator shall control hexavalent chromium emissions discharged to the atmosphere by meeting the requirements identified below in Table 1. Alternatively, a facility can choose to comply by operating under an approved alternative compliance method pursuant to subdivision (i).

**Table 1: Hexavalent Chromium Emission Limits for Hexavalent Hard and Decorative Chromium Electroplating and Chromic Acid Anodizing Tanks**

Facility Type	Distance to Sensitive Receptor (meters) <sup>1</sup>	Annual Permitted Amp-Hrs	Hexavalent Chromium Emission Limit (mg/amp-hr)	Required Air Pollution Control Technique
<u>Existing Facility</u>	$\leq 100$	$\leq 20,000$	<u>0.01</u>	Use of Certified Chemical Fume Suppressant. Alternatively, a facility may install an add-on air pollution control device(s) or add-on non-ventilated air pollution control device(s) that controls hexavalent chromium emissions to below 0.0015 mg/amp-hr.
<u>Existing Facility</u>	$\leq 100$	$> 20,000$	0.0015	Add-on air pollution control device(s) or add-on non-ventilated air pollution control device(s).
Existing Facility	$> 100$	$\leq 50,000$	0.01	Use of Certified Chemical Fume Suppressant. Alternatively, a facility may install an add-on air pollution control device(s) or add-on non-ventilated air pollution control device(s) that controls hexavalent chromium emissions to below 0.0015 mg/amp-hr.
Existing Facility	$> 100$	$> 50,000$ and $\leq 500,000$	0.0015	Use of an air pollution control technique approved by the Executive Officer.
Existing Facility	$> 100$	$> 500,000$	<u>0.0015</u>	Add-on air pollution control device(s) or add-on non-ventilated air pollution control device(s).
Modified Facility	Any	Any	0.0015	Using an add-on air pollution control device(s), or an approved alternative method pursuant to subdivision (i) to control hexavalent chromium emissions.
New Facility	Any	Any	0.0011	Using a HEPA add-on air pollution control device, or an approved alternative method pursuant to subdivision (i) to control hexavalent chromium emissions.

<sup>1</sup> Distance shall be measured, rounded to the nearest meter, from the edge of the chromium electroplating or anodizing tank nearest the sensitive receptor (for facilities without add-on air pollution control devices), or from the stack or centroid of stacks (for facilities with add-on air pollution control devices), to the property line of the nearest sensitive receptor existing on or before October 24, 2007.

- (B) The owner or operator of a new facility conducting hexavalent chromium electroplating or chromic acid anodizing operations shall:
- (i) Demonstrate that the new facility is not located in an area that is zoned for residential or mixed use; and
  - (ii) Demonstrate that the new facility, determined by the

District, is not located within 1,000 feet from the boundary of a sensitive receptor, a school under construction, or any area that is zoned for residential or mixed use.

- (C) A new facility shall be deemed to meet the requirements specified in clauses (h)(2)(B)(i) and (ii) if one of the following criteria is met, even if the facility does not meet the requirement at the time of initial start-up:
    - (i) The requirements specified in clauses (h)(2)(B)(i) and (ii) are met at the time a permit to construct is issued by the District, and substantial use of the permit to construct takes place within one year after it is issued; or
    - (ii) The requirements specified in clauses (h)(2)(B)(i) and (ii) are met at the time a Permit to Construct is issued by the District, and substantial use of the Permit to Construct takes place before any zoning change occurs that affects the operation's ability to meet the requirement at the time of initial start-up.
  - (D) Prior to initial start-up, the owner or operator of a new facility shall demonstrate to the District that the new facility meets the requirements specified in paragraph (h)(2).
- (3) Decorative Chromium Electroplating Tanks Using a Trivalent Chromium Bath
- (A) During tank operation, the owner or operator of an existing, modified, or new facility shall control chromium emissions discharged to the atmosphere by meeting one or more of the requirements identified below.
- (4) Tier III Hexavalent Chromium Tanks
- (A) The owner or operator of a facility that conducts chromium electroplating or chromic acid anodizing operations shall collect and vent all hexavalent chromium emissions from each Tier III Hexavalent Chromium Tank, excluding chromium electroplating and chromic acid anodizing tanks subject to paragraphs (h)(2) and (h)(3), to an add-on air pollution control device, or an approved alternative method pursuant subdivision (i), that meets the following hexavalent chromium emission limits:
    - (i) For existing facilities, 0.0015 mg/amp-hr, if any tanks that

- are vented are electrolytic; or
- (ii) For new facilities, 0.0011 mg/amp-hr, if any tanks that are vented are electrolytic; or
  - (iii) 0.20 mg/hr, if all tanks vented to the add-on air pollution control device are not electrolytic and the ventilation system has a maximum exhaust rate of 5,000 cfm or less; or
  - (iv) 0.004 mg/hr-ft<sup>2</sup>, with the applicable surface area based on the tank surface area of all Tier III Hexavalent Chromium Tank(s) and other tanks required to be controlled by a SCAQMD Permit to Operate vented to an add-on air pollution control device, if the ventilation system has a maximum exhaust rate of greater than 5,000 cfm.
- (B) For Tier III Hexavalent Chromium Tanks specified in subparagraph (h)(4)(A) existing prior to [Date of Adoption], the owner or operator shall submit complete permit applications for add-on air pollution control devices to the Executive Officer as specified below:

<b>Electrolytic Process at the Facility</b>	<b>Compliance Date for Permit Application Submittal for Add-on Air Pollution Control Device</b>
Chromic Acid Anodizing	[180 Days after Date of Adoption]
Hard Chromium Electroplating	[365 Days after Date of Adoption]
Decorative Chromium Electroplating	[545 Days after Date of Adoption]

- (i) Install the add-on air pollution control device(s) no later than 1 year after a Permit to Construct for the add-on air pollution control device(s) has been issued by the Executive Officer; and
- (ii) Beginning no later than [30 days after Date of Adoption] until the add-on air pollution control device specified in subparagraph (h)(4)(B) has been installed, cover the tank no later than 30 minutes after ceasing operation of the tank. Tank covers shall be free of holes, tears, and gaps and handled in a manner that does not lead to fugitive

emissions.

(C) The owner or operator shall not be subject to the requirement of subparagraph (h)(4)(A) to vent a Tier III Hexavalent Chromium-Tank to an add-on air pollution control device if the uncontrolled hexavalent chromium emission rate of the tank is less than the applicable emission rate specified in (h)(4)(A), as demonstrated by a District-approved source test conducted pursuant to the Technical Guidance Document for *Measurement of Hexavalent Chromium Emissions from Chromium Plating and Chromic Acid Anodizing Operations for Certification of Wetting Agent Chemical Mist Suppressant Subject to SCAQMD Rule 1469* made available by the Executive Officer.

(5) Tier II Hexavalent Chromium Tank

The owner or operator of a facility that conducts chromium electroplating or chromic acid anodizing shall control hexavalent chromium emissions by utilizing a tank cover, mechanical fume suppressant, or other method approved by the Executive Officer. Alternatively, the owner or operator may vent all hexavalent chromium emission from each Tier II Hexavalent Chromium Tank to an add-on air pollution control device, or an approved alternative method pursuant to subdivision (i), that meets the following hexavalent chromium emission limits subparagraph (h)(4)(A) and the requirements in subparagraph (h)(4)(B).

(6) Ventilation Design and Operation for Air Pollution Control Techniques

The owner or operator of a facility that conducts chromium electroplating or chromic acid anodizing operations shall operate air pollution control techniques required under subdivisions (h) and (t) at the applicable minimum hood induced capture velocity specified in the most current edition (i.e., at the time the permit application was deemed complete by the SCAQMD) of the *Industrial Ventilation, A Manual of Recommended Practice for Design*, published by the American Conference of Governmental Industrial Hygienists.

(i) Alternative Compliance Methods for New, Modified and Existing Hexavalent Decorative and Hard Chromium Electroplating and Chromic Acid Anodizing Facilities

The owner or operator of a facility may submit to the District an alternative

compliance method(s) to paragraphs (h)(2) for existing facilities, modified facilities, and new facilities, and paragraph (h)(4) for Tier II and Tier III Hexavalent Chromium Tanks. In order to operate under this subdivision, the owner or operator shall:

- (1) Submit information contained in Appendix 7 to the Executive Officer.
- (2) Demonstrate that the alternative method(s) is enforceable, provides an equal, or greater hexavalent chromium emission reduction, and provides an equal, or greater risk reduction than would direct compliance with the requirements of subparagraph (h)(2)(A) for existing facilities, modified facilities, and new facilities, and paragraph (h)(4) for Tier II and Tier III Hexavalent Chromium Tanks.

(j) Training and Certification

- (1) Chromium electroplating and chromic acid anodizing personnel responsible for environmental compliance, maintaining electroplating bath chemistries, and testing and recording electroplating bath surface tension data shall complete a SCAQMD approved training program every two years. For new facilities, initial training must be completed within a period not to exceed two years of start-up.
- (2) Only persons who have completed a SCAQMD approved training program and have received a certification issued by the SCAQMD shall be responsible for recordkeeping associated with environmental compliance, maintaining electroplating bath chemistries, and testing and recording electroplating bath surface tension data.
- (3) Notwithstanding paragraph (j)(2), in the event that all persons who have completed a SCAQMD approved training program leave employment at a facility, the owner or operator may be responsible for recordkeeping associated with environmental compliance, maintaining electroplating bath chemistries, and testing and recording electroplating bath surface tension data for a period not to exceed two years.

(k) Source Test Requirements and Test Methods

(1) Source Test Requirement

The owner or operator of a facility subject to this rule using air pollution control techniques to comply with the applicable requirements of subdivision (h) shall conduct an initial source test to demonstrate

compliance with the applicable emission standards of subdivision (h).

(2) Approved Test Methods

(A) Emissions testing shall be conducted in accordance with one of the following test methods:

(i) CARB Test Method 425, last amended July 28, 1997, (section 94135, Title 17, California Code of Regulations (CCR)); or

(ii) U.S. EPA Method 306, (40 CFR 63 Appendix A) with a minimum of three test runs; or

(iii) SCAQMD Method 205.1, for results reported as total chromium.

(B) Emissions testing for add-on non-ventilated air pollution control devices shall be conducted in accordance with Smoke Test to Verify the Seal Integrity of Covers Designed to Reduce Chromium Emissions from Electroplating and Anodizing Tanks procedures (See Appendix 4).

(C) Surface tension using a tensiometer shall be measured in accordance with U.S. EPA Method 306B (40 CFR 63 Appendix A). Surface tension using a stalagmometer shall be measured using the procedure set forth in Appendix 10, or an alternative procedure approved by the District.

(3) Source Test and Emission Evaluation Compliance Dates

(A) The owner or operator shall conduct the initial source test to comply with paragraph (k)(1) no later than 120 days after approval of the initial source test protocol specified in paragraph (k)(4), unless otherwise approved in writing by the Executive Officer. Subsequent source tests are required to be conducted within 36 months of the most recent successful District-approved source test. Failure to retest following a failed or unsuccessful source test within 60 days shall constitute as a violation of this rule. The owner or operator may conduct subsequent source tests within 48 months of the most recent successful SCAQMD-approved source test if:

(i) All capture efficiency tests conducted by the owner or operator within 48 months of the most recent successful SCAQMD-approved source test did not require a tank to be

- shut down pursuant to clauses (k)(6)(A)(ii) and (k)(6)(B)(iv); and
- (ii) The owner or operator conducted all applicable inspection and maintenance requirements as specified in Appendix 4 – Summary of Inspection and Maintenance Requirements.
- (B) A source test conducted after September 1, 2015 may be used to demonstrate compliance with the initial source test required in subparagraph (k)(3)(A). If not previously approved by the SCAQMD, the owner or operator shall submit the subject source test to the SCAQMD's Compliance Division by [30 days after Date of Adoption]. The subject source test shall meet, at a minimum, the criteria specified in clauses (k)(3)(B)(i) through (iii) below. The Executive Officer shall notify the owner or operator within 30 days of receiving the source test if it has been approved.
- (i) The test demonstrated compliance with the applicable emission limits of subdivision (h);
  - (ii) The test is representative of the method to control emissions currently in use as of [Date of Adoption]; and
  - (iii) The test was conducted using one of the approved test methods specified in paragraph (k)(2).
- (C) Emission Screening
- (i) An emission screening of hexavalent chromium for a Tier II or Tier III Hexavalent Chromium Tank subject to subparagraph (k)(3)(A) may be alternatively conducted to comply with the requirements for subsequent source tests specified in subparagraph (k)(3)(A). The emission screening of hexavalent chromium shall:
    - (A) Follow a source test protocol previously submitted and approved by the District;
    - (B) Consist of one run to evaluate the capture and control of hexavalent chromium emissions; and
    - (C) Be representative of operating conditions at the facility.
  - (ii) The owner or operator shall submit to the SCAQMD the results of the emission screening within 30 days of receiving the results.



- (iii) The owner or operator will be required to conduct a complete source test using an approved test method specified under paragraph (k)(2) within 60 days of conducting an emission screening that:
- (A) Fails the capture efficiency test(s) specified in the source test protocol;
  - (B) Exceeds an emission limit specified in the Permit to Operate; or
  - (C) Exceeds an emission standard specified in subdivision (h).
- (iv) The owner or operator may conduct an emissions screening test to satisfy the requirement for the initial source test required in subparagraph (k)(3)(A) if the owner or operator conducted a source test after January 1, 2009. If the source test was not previously approved by the District, the owner or operator shall submit the subject source test to the District's Compliance Division by [30 days after Date of Adoption]. The subject source test shall meet, at a minimum, the criteria specified in clauses (k)(3)(B)(i) through (iii) above. The Executive Officer shall notify the owner or operator within 30 days of receiving the source test if it has been approved.
- (4) Source Test Protocol

The owner or operator shall submit source test protocols for source tests required under subdivision (k) as specified below in Table 3:

**Table 3: Submittal Dates of Source Test Protocol**

<b>Permitted Air Pollution Control Technique</b>	<b>Facility Permitted Annual Ampere-Hours</b>	<b>Due Date of Initial Source Test Protocol</b>	<b>Due Date of Subsequent Source Test Protocol</b>
Existing on or Before [Date of Adoption]	> 20,000,000	No later than [180 Days After Date of Rule Adoption]	180 Days Prior to Due Date of Subsequent Source Test
	≤ 20,000,000 and > 1,000,000	No later than [365 Days After Date of Rule Adoption]	180 Days Prior to Due Date of Subsequent Source Test
	≤ 1,000,000 and > 50,000	No later than [545 Days After Date of Rule Adoption]	180 Days Prior to Due Date of Subsequent Source Test

New or Modified After [Date of Adoption]	Any	60 days After Initial Start-Up	180 Days Prior to Due Date of Subsequent Source Test
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- (A) Permitted air pollution control techniques existing on or before [Date of Rule Adoption] with a complete permit application submitted by [60 days after Date of Rule Adoption] for equipment modification shall instead be subject to the requirements of modified permitted air pollution control technique for the submittal of the initial source test protocol.
- (B) The source test protocol shall include the performance test criteria of the end user and all assumptions, required data, and calculated targets for testing the following:
  - (i) target chromium concentration;
  - (ii) preliminary chromium analytical data; and
  - (iii) planned sampling parameters.
- (C) In addition, the source test protocol shall include information on equipment, logistics, personnel, and other resources necessary for an efficient and coordinated test.
- (D) The most recent SCAQMD-approved source test protocol may be used for subsequent source tests if there are no changes since the last successful SCAQMD-approved source test.
- (5) Emission Points Test Requirements
 

Each emission point subject to the requirements of this rule shall be tested unless a waiver is granted by U.S. EPA and approved by the Executive Officer.
- (6) Capture Efficiency
  - (A) Quantitative Assessment
    - (i) The owner or operator of a facility using an add-on air pollution control device or add-on non-ventilated air pollution control device to comply with the requirements of subdivision (h) shall demonstrate that all emissions are captured by the associated add-on air pollution control device or add-on non-ventilated air pollution control device by a quantitative measurement approved by the District. The demonstration shall be made during any source test

specified in subdivision (k). An example of an approved quantitative measurement is demonstrating that the capture system meets the design criteria and ventilation velocities specified in the American Conference of Governmental Hygienists Industrial Ventilation, A Manual of Recommended Practice.

- (ii) Beginning 60 Days after the completion of the initial source test of a Tier II or Tier III Hexavalent Chromium Tank as required in subparagraph (k)(3)(A), the owner or operator subject to clause (k)(6)(A)(i) that has an add-on air pollution control device shall measure the velocity of all collection slots and, if applicable, the pressure of the push air manifold, or at alternate locations based on the most recent District-approved source test, in order to demonstrate continuous compliance with the capture efficiency of the add-on air pollution control device at least once every 180 days. The owner shall comply with the monitoring and repair requirements specified below in Table 4.

**Table 4: Add-on Air Pollution Control Device  
Parameter Monitoring**

	<b>Collection Slot(s) Velocity</b>	<b>Push Air Manifold Pressure (for push-pull systems only)</b>	<b>Required Action</b>
<b>Acceptable Measurement</b>	> 95% of the most recent passing source test or emission screening; or $\geq$ 2,000 fpm	95-105% compared to the most recent passing source test or emission screening	None
<b>Repairable Measurement</b>	90-95% of the most recent passing source test or emission screening test, or < 2,000 fpm and > 1,800 fpm	90-110% of the most recent passing source test or emission screening test	Repair or replace, and re-measure within 3 calendar days of measurement
<b><u>Failing Measurement</u></b>	< 90% of the most recent passing source test or emission screening test, or < 1,800 fpm	> 110% or < 90% of the most recent passing source test or emission screening test	Immediately shut down any tanks controlled by the add-on air pollution control device that had a failing measurement

- (A) The owner or operator of an add-on air pollution control device that demonstrates a parameter monitored to be a repairable measurement shall correct in a timely manner as specified in Table 4: Add-on Air Pollution Control Device Parameter Monitoring.
  - (B) The owner or operator shall shut down a tank controlled by an add-on air pollution control device due to the failing to correct a repairable measurement upon detection of failing measurement until the owner or operator demonstrates that the collection slot velocity and/or push air manifold pressure are within the acceptable measurement range.
- (B) Qualitative Assessment
- The owner or operator of a facility subject to clause (k)(6)(A)(i) shall periodically conduct a smoke test in order to demonstrate continuous compliance with the capture efficiency of the air pollution control device or add-on non-ventilated air pollution control device. The test shall be:
- (i) Conducted using the method described in Appendix 5, Appendix 8, or any other method deemed acceptable by the Executive Officer;
  - (ii) Conducted initially upon start-up for new and modified add-on air pollution control devices or add-on non-ventilated air pollution control devices; and
  - (iii) Conducted periodically by the owner, operator, or a third party at least once every 180 days of a previously conducted test, and conducted subsequent, not to exceed 7 calendar days, to the Quantitative Assessment measurement requirement of subparagraph (k)(6)(A), if applicable.
  - (iv) The owner or operator of an add-on air pollution control device or add-on non-ventilated air pollution control device that demonstrates non-compliance with any smoke test shall immediately shutdown, upon discovery, all Tier II and Tier III Hexavalent Chromium Tanks that demonstrated non-

compliance with any smoke test until a smoke test demonstrating full compliance with subparagraph (k)(6)(B) is achieved.

- (7) The owner or operator shall conduct all capture efficiency tests and measurements specified in subparagraphs (k)(6)(A) and (k)(6)(B) under typical operating conditions barring safety conditions posing physical constraints, limited accessibility, or safety issues, and tanks required to be shut down pursuant to clauses (k)(6)(A)(ii) and (k)(6)(B)(iv).
- (l) Certification of Wetting Agent Chemical Fume Suppressants
  - (1) The owner or operator shall not add PFOS based fume suppressants to any chromium electroplating or chromic acid anodizing bath. Any wetting agent chemical fume suppressant used to comply with the requirements of this rule shall be certified by the Executive Officer as able to reduce or suppress hexavalent chromium emissions at the surface of an electroplating or anodizing bath through the reduction of surface tension of the bath to a level at which an emission factor below 0.01 milligrams per ampere hour is achieved. Wetting agent chemical fume suppressants shall meet, at a minimum, a surface tension below 40 dynes/cm, as measured by a stalagmometer, or below 33 dynes/cm, as measured by a tensiometer, unless an alternative is approved pursuant to subdivision (q). The Executive Officer will publish and periodically update a list of certified chemical fume suppressants based on a certification process conducted by SCAQMD and CARB. The owner or operator shall use certified chemical fume suppressants in accordance with the certification and manufacturer specifications.
  - (2) No later than July 1, 2020, the Executive Officer shall notify the owner or operator of the following information:
    - (A) The availability of a wetting agent chemical fume suppressant that meets the requirements of paragraph (l)(1) by July 1, 2022; and
    - (B) The certification status of any potential wetting agent chemical fume suppressants that is going through the certification process specified in paragraph (l)(1).
  - (3) Beginning July 1, 2022, the owner or operator shall only add a wetting agent chemical fume suppressant to a electroplating or chromic acid anodizing tank that meets requirements of paragraph (l)(1).

- (4) If the notification specified in paragraph (l)(2) indicates that a wetting agent chemical fume suppressant that meets the requirements of paragraph (l)(1) will not be available for use by July 1, 2022, then the owner or operator shall install and implement an air pollution control technique to meet the emission limits specified in paragraph (h)(2) no later than July 1, 2022.
  - (5) In lieu of complying with paragraph (l)(3), the owner or operator may submit no later than January 1, 2021, a written and signed commitment to the Executive Officer stating that the facility will phase out by July 1, 2023, the use of hexavalent chromium in the electroplating or chromic acid anodizing tank(s) that use a wetting agent chemical fume suppressant. The owner or operator may continue to use a wetting agent chemical fume suppressant certified pursuant to paragraph (l)(1) until July 1, 2023.
  - (6) An owner or operator that fails to phase out the use of hexavalent chromium by July 1, 2023 pursuant to paragraph (l)(5) will be required to cease operation of the electroplating or chromic acid anodizing tank that contains hexavalent chromium until the facility can meet the emission limits specified in paragraph (h)(2) for the subject tank.
- (m) **Parameter Monitoring**
- (1) **Add-On Air Pollution Control Device**
    - (A) **Pressure and Air Flow**  
The owner or operator shall continuously monitor the operation of the add-on air pollution control device by installing and maintaining mechanical gauges to measure the applicable pressures and air flows as specified in Table 5:

**Table 5:**  
**Pressure and Air Flow Measurement Parameters**

Permitted Air Pollution Control Technique	Location	Parameter Monitored	Units	Start Date
Existing, New, or	Push Manifold (for	Static Pressure	Inches of	60 Days After

Modified	push-pull systems)		water	Completion of Initial Source Test
Existing, New, or Modified	Collection Manifold or Any Location within the System Using a Flow Meter	Static Pressure or Volumetric Flow Rate	Inches of water or Actual Cubic Feet per Minute	60 Days After Completion of Initial Source Test
Existing on or Before [Date of Adoption]	Across Each Stage of the Control Device	Differential Pressure	Inches of water	[Date of Adoption]
New	Across Each Stage of the Control Device	Differential Pressure	Inches of water	60 Days After Completion of Initial Source Test

Each mechanical gauge shall be located so that it is easily visible and in clear sight of the operation or maintenance personnel. The exhaust flow rate shall be maintained within the value established during the source test and specified in the Permit to Operate to demonstrate compliance with the emission limitation. The gauge shall be labeled with the acceptable airflow ranges. The air flow gauges shall be maintained as specified in Table 4-1 of Appendix 4.

(B) HEPA Filters

Beginning 60 Days after completion of the initial source test as required by subparagraph (k)(6)(A), for the purposes of subparagraph (m)(1)(A), the owner or operator of an add-on air pollution control device equipped with HEPA filters shall ensure that the monitoring device for pressure drop:

- (i) Is equipped with ports to allow for periodic calibration in accordance with manufacturer specifications;
- (ii) Is calibrated according to manufacturer's specification at least once every calendar year;
- (iii) Is maintained in accordance with manufacturer's specification.

- (2) Wetting Agent Chemical Fume Suppressants (Excluding Decorative Chromium Electroplating Tanks Using a Trivalent Chromium Bath)
  - (A) The owner or operator shall monitor the surface tension of the chromium electroplating or chromic acid anodizing tank that contains a certified chemical fume suppressant with either a stalagmometer or tensiometer using the applicable method pursuant to subparagraph (k)(2)(C). The surface tension shall be maintained below the respective value established in the list of certified chemical fume suppressants pursuant to subdivision (l), or at or below a more stringent value specified in permit conditions or approved Compliance Plan conditions. Surface tension shall be measured daily for 20 operating days, and every third operating day thereafter, but no less than once weekly, as long as there is no violation of the surface tension requirement. If a violation occurs, the measurement frequency shall return to daily for 20 operating days, and every third operating day thereafter.
  - (B) The owner or operator of a facility operating under an approved alternative compliance method pursuant to subdivision (i), and using chemical fume suppressants as all or partial control of hexavalent chromium emissions must measure and monitor the surface tension of the electroplating or anodizing bath each operating day . The surface tension must be maintained at or below the surface tension measured during the source test.
- (3) Fume Suppressants Forming a Foam Blanket

The owner or operator shall monitor the foam blanket thickness across the surface of the chromium electroplating or chromic acid anodizing tank. The foam blanket thickness shall be maintained consistent with the requirements established during the source test to demonstrate compliance with the emission limitation. Foam thickness shall be measured hourly for 15 operating days, and each operating day thereafter as long as there is no violation of the foam thickness requirement. If a violation occurs, the measurement frequency shall return to hourly for 15 operating days, and each operating day thereafter.
- (4) Polyballs or Similar Mechanical Fume Suppressants

The owner or operator shall visually inspect the Tier III Hexavalent



Chromium Tank for coverage comparable to the coverage during the source test each operating day.

(n) Inspection and Maintenance and Operation and Maintenance Plan

- (1) Owners or operators of chromium electroplating and chromic acid anodizing operations using an add-on air pollution control device or add-on non-ventilated air pollution control device shall comply with the applicable inspection and maintenance requirements listed in Table 4-1 of Appendix 4. The owner or operator of an add-on air pollution control device or add-on non-ventilated air pollution control device custom designed for a specific operation shall develop operating and maintenance requirements. The requirements and frequency of inspection shall be sufficient to ensure compliance.
- (2) Hard and decorative chromium electroplating, and chromic acid anodizing operations using chemical fume suppressants or mechanical fume suppressants shall comply with the applicable inspection and maintenance requirements in Table 4-2 of Appendix 4.

(3) Operation and Maintenance Plan

The owner or operator subject to the inspection and maintenance requirements of paragraphs (n)(1) and (n)(2) shall prepare an operation and maintenance plan. For major sources, the plan shall be incorporated by reference into the source's Title V permit. The plan shall incorporate the inspection and maintenance requirements for that device or monitoring equipment, as identified in Tables 4-1 and 4-2 of Appendix 4, and shall include the following elements:

- (A) A standardized checklist to document the operation and maintenance of the source, the add-on air pollution control device, and the process and control system monitoring equipment; and
- (B) Procedures to be followed to ensure that equipment is properly maintained.

The owner or operator may use applicable standard operating procedure (SOP) manuals, Occupational Safety and Health Administration (OSHA) plans, or other existing plans, provided the alternative plans meet the requirements of this subdivision.

(4) Operation and Maintenance Plan Availability

The owner or operator shall keep the written operation and maintenance

plan on record after it is developed, to be made available for inspection, upon request.

(5) Operation and Maintenance Plan Modifications

Any changes made by the owner or operator should be documented in an addendum to the plan. In addition, the owner or operator shall keep previous (i.e., superseded) versions of the operation and maintenance plan on record to be made available for inspection, upon request, for a period of 5 years after each revision to the plan.

(6) Breakdown Provisions In Operation and Maintenance Plan

The operation and maintenance plan shall be revised as necessary to minimize breakdowns.

(o) Recordkeeping

(1) Inspection records for sources using add-on control air pollution control devices or add-on non-ventilated air pollution control devices:

The owner or operator shall maintain inspection records to document that the inspection and maintenance requirements of subdivision (n) and Tables 4-1 and 4-2 of Appendix 4, and that the provisions of the operation and maintenance plan required by subdivision (n) have been met. The record can take the form of a checklist and should identify:

- (A) the device inspected;
- (B) the date and time of inspection;
- (C) a brief description of the working condition of the device during the inspection;
- (D) maintenance activities performed on the components of the air pollution control system (i.e. duct work replacement, filter pad replacement, fan replacement, etc.); and
- (E) any actions taken to correct deficiencies found during the inspection.

(2) Inspection Records for Sources Using Chemical or Mechanical Fume Suppressants

The owner or operator shall maintain inspection records to document that the inspection and maintenance requirements in paragraph (n)(2) have been met. The record can take the form of a checklist.

(3) Source Test, Capture Efficiency, and Smoke Test Records

The owner or operator shall maintain test reports and records

documenting the conditions and results of all source tests, capture efficiency tests, emission screenings, and smoke tests required by subdivision (k). The records shall include performance test results required to determine compliance with paragraph (m)(1), including the pressure drop established during the source test to demonstrate compliance with the emission limitation.

(4) Monitoring Data Records

The owner or operator shall maintain records of continuously recorded ampere-hour data required by paragraph (d)(1) and monitoring data required by subdivision (m).

(A) Cumulative Rectifier Usage Records

The owner or operator shall, on a monthly basis, record the actual cumulative rectifier usage expended during each month of the reporting period, and the total usage expended to date.

(B) Pressure Measurements

The owner or operator shall record the applicable pressures and velocities once a week as specified in Table 5 of subdivision (m).

(C) Surface Tension

(i) The owner or operator shall record the surface tension daily for 20 operating days, and every third operating day thereafter, but no less than once weekly as long as there is no violation of the surface tension requirement. If the surface tension exceeds the respective value established in the list of certified chemical fume suppressants pursuant to subdivision (f), or a more stringent value specified in permit conditions or approved Compliance Plan conditions, the owner or operator shall again record the surface tension daily for 20 operating days, and every third operating day.

(ii) For facilities operating under an approved alternative compliance method pursuant to subdivision (i), and using chemical fume suppressants as all or partial control of hexavalent chromium emissions, the owner or operator shall record the surface tension of the electroplating or anodizing bath daily.

(D) Mechanical Fume Suppressant and Foam Blankets

- (i) The owner or operator using a foam blanket to comply with the emission standards of subdivisions (h) or (i), shall record the foam thickness hourly for 15 operating days, and daily thereafter as long as there is no violation of the foam thickness requirement. If a violation occurs, the measurement frequency shall return to hourly for 15 operating days, and daily thereafter.
  - (ii) The owner or operator using polyballs or other mechanical fume suppressants to comply with the emission standards of subdivisions (h) or (i), shall record the coverage of the electroplating or anodizing bath daily. Coverage shall be reported as a percentage of bath surface area.
- (5) Records of Excesses  
The owner or operator shall maintain records of exceedances of: the emission limitations in subdivisions (h) and (i), the monitoring parameter values established under subdivision (m), or any site-specific operating parameters established for alternative equipment. The records shall include the date of the occurrence, the duration, cause (if known), and, where possible, the magnitude of any excess emissions.
- (6) The owner or operator shall maintain records demonstrating compliance with housekeeping practices and best management practices, as required by subdivisions (f) and (g), including the dates on which specific activities were completed, and records showing that chromium or chromium-containing wastes have been stored, disposed of, recovered, or recycled using practices that do not lead to fugitive emissions.
- (7) Records of Fume Suppressant Additions  
For sources using fume suppressants to comply with the standards, the owner or operator shall maintain records of the date, time, approximate volume, and product identification of the fume suppressants that are added to the electroplating or anodizing bath.
- (8) Records of Trivalent Bath Components  
For sources complying with paragraph (h)(3) using trivalent chromium baths, the owner or operator shall maintain records of the bath components purchased, with the wetting agent clearly identified as a bath constituent contained in one of the components.
- (9) Records of Filter Purchase and Disposal

For sources using add-on air pollution control devices to comply with the standards, the owner or operator shall retain purchase orders for filters and waste manifest records for filter disposal.

- (10) The owner or operator shall keep records of building inspection and repairs specified in paragraphs (e)(6) and (e)(7).

(11) Records Retention

All records shall be maintained for five years, at least two years on site.

(p) Reporting

(1) Source Test Documentation

(A) Notification of Source Test

- (i) The owner or operator of a source shall notify the Executive Officer that a source test shall be conducted at least 60 calendar days before the performance test is scheduled.

- (ii) The provisions in clause (p)(1)(A)(i), above, do not apply if the source test was conducted prior to July 24, 1997 and was approved by the Executive Officer and the U.S. EPA.

(B) Reports of Source Test Results

The owner or operator shall report source test results to the Executive Officer. Reports of source test results shall be submitted no later than 90 calendar days following the completion of the required source test, and shall be submitted as part of the notification of compliance status required by paragraphs (p)(2) and (p)(3).

- (C) The content of source test reports shall contain, at a minimum, the information identified in Appendix 1.

(2) Initial Compliance Status Report

An initial compliance status report is required each time that a source becomes subject to the requirements of this rule. The owner or operator shall submit to the Executive Officer an initial compliance status report, signed by the responsible official who shall certify its accuracy, attesting to whether the source has complied with this rule.

(A) Initial Compliance Status Report Due Date

The initial compliance status report for existing facilities shall be submitted to the Executive Officer no later than April 24, 2008.

New or modified facilities shall submit the initial compliance status report upon start-up.

- (B) The initial compliance status report shall contain, at a minimum, the information identified in Appendix 2.

(3) Ongoing Compliance Status and Emission Reports

The owner or operator shall submit a summary report to the Executive Officer to document the ongoing compliance status.

- (A) Frequency of Ongoing Compliance Status and Emission Reports

The report shall be submitted each calendar year on or before February 1 for all sources and shall include information covering the preceding calendar year (January 1 through December 31).

- (B) The content of ongoing compliance status and emission reports shall, at a minimum, contain the information identified in Appendix 3.

(4) Notification of Incident

- (A) The owner or operator shall notify the Executive Officer within one hour of the incident or within one hour from the time the owner or operator knew or reasonably should have known of, any failed smoke test, any failed source test, any exceedance of a permitted ampere-hour limit, or any malfunction of a non-resettable ampere-hour meter by calling 1-800-CUT SMOG. In the cases of emergencies that prevent the owner or operator from reporting all required information within the one hour limit, the Executive Officer may extend the time for reporting the required information provided such owner or operator has notified the Executive Officer of the incident within the 24-hour limit. The notification shall include the following information:

- (i) Date and time of the incident and when it was discovered;
  - (ii) Specific location and equipment involved;
  - (iii) Responsible party to contact for further information;
  - (iv) Causes of the incident, to the extent known; and
  - (v) Estimated time for repairs and correction.

- (B) Within seven calendar days after a reported incident has been corrected, but no later than thirty calendar days from the initial date of the incident, unless an extension has been approved in writing by the Executive Officer, the owner or operator shall

submit a written incident report to the Executive Officer that includes:

- (i) An identification of the equipment involved in causing, or suspected of having caused, or having been affected by the incident;
  - (ii) The duration of the incident;
  - (iii) The date of correction and information demonstrating that compliance is achieved;
  - (iv) An identification of the types of emissions, if any, resulting from the incident;
  - (v) A quantification of the excess emissions, if any, resulting from the incident and the basis used to quantify the emissions;
  - (vi) Information substantiating that steps were immediately taken to correct the condition causing the incident, and to minimize the emissions, if any, resulting from the incident;
  - (vii) Written verification that the facility is operating in compliance with SCAQMD Rule 1469. If the facility is not in compliance with SCAQMD Rule 1469, provide an approximate date the facility is expected to be in compliance;
  - (viii) A description of the corrective measures undertaken and/or to be undertaken to avoid such an incident in the future; and
  - (ix) Pictures of the equipment that failed, if available.
- (5) Reports Associated with Trivalent Chromium Baths Exclusively Using a Chemical Fume Suppressant Containing a Wetting Agent
- Owners or operators with trivalent chromium baths exclusively using a certified chemical fume suppressant containing a wetting agent to comply with subparagraph (h)(5)(A) are not subject to paragraphs (p)(1) through (p)(3), but shall instead submit the following reports:
- (A) Sources Currently Using Trivalent Chromium
- No later than November 24, 2007, the owner or operator of an existing facility shall submit a notification of compliance status that contains the information specified in clauses (p)(5)(A)(i)

through (iii). New and modified facilities shall submit this information within 30 days after December 5, 2008.

- (i) The name and address of each source subject to this paragraph;
- (ii) A statement that a trivalent chromium process that incorporates a wetting agent will be used to comply; and
- (iii) The list of bath components that comprise the trivalent chromium bath, with the wetting agent clearly identified.

(B) Sources Changing to Trivalent Chromium

Within 30 days of a change to the trivalent chromium electroplating process, a report that includes:

- (i) A description of the manner in which the process has been changed and the emission limitation, if any, now applicable to the source; and
- (ii) The notification and reporting requirements of paragraphs (p)(1), (p)(2), and (p)(3), if the source complies with the emission limitation option, or paragraph (p)(5), if the source uses a wetting agent to comply. The report shall be submitted in accordance with the schedules identified in those paragraphs

(6) Adjustments to the Timeline for Submittal and Format of Reports

The Executive Officer may adjust the timeline for submittal of periodic reports, allow consolidation of multiple reports into a single report, establish a common schedule for submittal of reports, or accept reports prepared to comply with other state or local requirements. Adjustments shall provide the same information and shall not alter the overall frequency of reporting.

(q) Procedure for Establishing Alternative Requirements

(1) Request Approval of an Alternative Requirement

Any person may request approval of an alternative requirement. The person seeking such approval shall submit the proposed alternative requirement to the Executive Officer for approval. The request shall include the proposed alternative requirement, the reason for requesting the alternative requirement, and information demonstrating that the criteria for approval identified in Appendix 6 is met.



## (2) Approval of an Alternative Requirement

The Executive Officer may approve an alternative requirement if it determines that application of the alternative requirement meets the criteria for approval identified in Appendix 6 and the Executive Officer has submitted the proposed alternative requirements and has received concurrence from the applicable concurring agencies identified in Appendix 6.

## (3) Approval Criteria

Nothing in this subdivision prohibits the Executive Officer from establishing approval criteria more stringent than that required in Appendix 6.

## (4) Alternatives Already Approved by U.S. EPA

Waivers for alternatives already approved by the U.S. EPA prior to October 24, 2007 shall remain in effect until the effective dates of the specified requirements become effective.

## (r) Exemptions

(1) The requirements of subdivisions (m) and (n) do not apply to decorative chromium electroplating tanks using a trivalent chromium bath with a wetting agent.

(2) The requirements of paragraphs (g)(5) and (g)(6) do not apply to grinding conducted under a continuous flood of metal removal fluid.

## (s) Rule 1402 Inventory Requirements

The owner or operator of chromium electroplating or chromic acid anodizing tanks at a facility that is in compliance with this rule will not be required to submit an emission inventory to the Executive Officer for emissions of toxic compounds subject to this rule, pursuant to paragraph (p)(1) of Rule 1402 - Control of Toxic Air Contaminants from Existing Sources.

## (t) Conditional Requirements for Permanent Total Enclosure

(1) The owner or operator of a facility that conducts chromium electroplating or chromic acid anodizing operations shall install a Permanent Total Enclosure for a Tier III Hexavalent Chromium Tank if:

(A) More than one incident of conducting a non-passing source test as required in paragraph (k)(1) within a consecutive 48-month

- period; or
- (B) More than one incident within a consecutive 48-month period of the owner or operator failing to cease operating a tank controlled by an add-on air pollution control device or non-ventilated add-on air pollution control device due to:
    - (i) A failed measurement of the collection system of an add-on air pollution control device; or
    - (ii) A failed smoke test of an add-on non-ventilated air pollution control device or an add-on air pollution control device.
- (2) Prior to determining if a facility is required to install a permanent total enclosure, the owner or operator of a facility may contest the requirement to install a permanent total enclosure.
- (A) Within 30 days of the date of notification by the Executive Officer, the owner or operator of facility may submit a written report to the Executive Officer providing evidence that the installation of a Permanent Total Enclosure is not warranted based on the following criteria:
    - (i) The incidences of non-compliances specified in paragraph (t)(1) did not occur; and
    - (ii) The owner or operator resolved the incidences of non-compliance specified in paragraph (t)(1) in a timely manner; and
    - (iii) The owner or operator implemented specific measures to minimize hexavalent chromium emissions.
  - (B) The Executive Officer shall use the information provided by the owner or operator of a facility to determine if a permanent total enclosure is required and will notify the owner or operator within 90 days of receiving the written report.
- (3) The owner or operator required to install a permanent total enclosure pursuant to subdivision (t) shall vent the Permanent Total Enclosure to an add-on air pollution control device that is fitted with HEPA filters, or other filter media that is rated by the manufacturer to be equally or more effective, and designed in a manner that does not conflict with requirements or guidelines set forth by OSHA or CAL-OSHA regarding worker safety, or the National Fire Protection Association regarding

safety.

- (4) The owner or operator that has been notified by the Executive Officer to have triggered the requirement specified in paragraph (t)(1) shall install the permanent total enclosure no later than 12 months after the Permit to Construct is issued by the Executive Officer. The owner or operator shall submit complete permit applications for the permanent total enclosure to the Executive Officer no later than:

- (A) 180 days after notification by the Executive Officer if the property line of the facility is within 500 feet of the property line of any sensitive receptor, school, or early education center.
- (B) 270 days after notification by the Executive Officer for all other facilities.

(u) Hexavalent Chromium Phase-Out Plan

- (1) The owner or operator shall not be subject to the requirements of paragraph (h)(4) to vent a Tier II or Tier III Hexavalent Chromium Tank, existing on or before [Date of Adoption], to an add-on air pollution control device, if the owner or operator submits a Hexavalent Chromium Phase-Out Plan to the Executive Officer for review and approval no later than [90 Days after Date of Adoption] containing the following:

- (A) A commitment that the facility will permanently eliminate or reduce hexavalent chromium concentrations within the subject tank to below the concentration of a Tier I Hexavalent Tank;
- (B) A description of the method by which hexavalent chromium concentrations will be permanently eliminated or reduced from the subject tank(s) and the date of final completion, not to exceed two years from approval of the Hexavalent Chromium Phase-Out Plan;
- (C) A list of milestones, including any testing required to meet specifications or quality assurance requirements, that are necessary to occur in order to allow the facility to reduce or eliminate hexavalent chromium by the completion date;
- (D) Completion date for each of the milestones listed in subparagraph (u)(1)(C); and
- (E) A list of all control measures that will be implemented for the subject tank(s), including dates of implementation, until the

hexavalent chromium-concentration is eliminated or reduced as stated.

- (2) The plan shall be subject to the fees specified in Rule 306.
- (3) The Executive Officer shall notify the owner or operator in writing whether the plan is approved or disapproved. Determination of approval status shall be based on, at a minimum, submittal of information that satisfies the criteria set forth in paragraph (u)(1). If the plan is disapproved, the owner or operator shall resubmit the plan, subject to plan fees specified in Rule 306, within 30 calendar days after notification of disapproval of the hexavalent chromium phase out plan. The resubmitted plan shall include any information necessary to address deficiencies identified in the disapproval letter.
- (4) Upon approval of the Hexavalent Chromium Phase-Out Plan, the owner or operator shall implement the approved plan and shall submit a progress report to the Executive Officer by the 5<sup>th</sup> of every quarter indicating the performance to meet the increments of progress for the previous month, or submit according to an alternative schedule as specified in the approved plan.
- (5) If the owner or operator does not eliminate or reduce hexavalent chromium by the final completion date as stated in the approved Hexavalent Chromium Phase-Out Plan or the Executive Officer denies a resubmitted Hexavalent Chromium Phase-Out Plan, the owner or operator shall:
  - (A) Submit complete permit applications for add-on air pollution control device required to meet the requirements of paragraph (h)(4) within 30 days of when the facility knew, or should have known, it could not meet the completion date; and
  - (B) Install the add-on air pollution control device(s) no later than 180 days after a Permit to Construct for the add-on air pollution control device(s) has been issued by the Executive Officer.

**Appendix 1 – Content of Source Test Reports.**

Source test reports shall contain, at a minimum, the following information:

1. A brief process description;
2. Sampling location description(s);
3. A description of sampling and analytical procedures and any modifications to standard procedures;
4. Test results in milligrams/ampere-hour;
5. Quality assurance procedures and results;
6. Records of operating conditions during the test, preparation of standards, and calibration procedures;
7. Original data for field sampling and field and laboratory analyses;
8. Documentation of calculations;
9. Applicable Industrial Ventilation Limits;
10. Collection slot velocities (if applicable);
11. Measured static, differential, or velocity pressure at the push manifold, collection manifold, across each stage of the control device, and exhaust stack (if applicable); and
12. Any other information required by the test method.

**Appendix 2 – Content of Initial Compliance Status Reports.**

Initial compliance status reports shall contain, at a minimum, the following information:

1. Facility name, SCAQMD ID number, facility address, owner/operator name, and telephone number;
2. The distance of the facility to the property line of the nearest commercial/industrial building and sensitive receptor using measurement methods provided in paragraph (h)(2);
3. Sensitive receptor locations, if they are located within one-quarter of a mile from the center of the facility;
4. Building parameters
  - Stack height in feet (point sources); or
  - Building area in square feet (volume sources).
5. Maximum potential rectifier capacity per tank and facility maximum operating schedule (more than or less than or equal to 12 hours per day);
6. The applicable emission limitation and the methods that were used to determine compliance with this limitation;
7. Facility-wide emissions, if applicable;
8. If a source test is required, the test report documenting the results of the source test, which contains the elements listed in Appendix 1;
9. If an initial smoke test demonstrating the capture efficiency of the add-on air pollution control device or add-on non-ventilated air pollution control device is required, the test report documenting the results which contain the elements listed in Appendix 8;
10. The type and quantity, in pounds, of hazardous air pollutants emitted by the source.;
11. For each monitored parameter for which a compliant value is to be established under subdivision (m), the specific operating parameter value, or range of values, that corresponds to compliance with the applicable emission limit;
12. The methods that will be used to determine continuous compliance, including a description of monitoring and reporting requirements, if methods differ from those identified in this section;
13. A description of the air pollution control technique for each emission point;
14. A statement that the owner or operator has completed and has on file the operation and maintenance plan as required by subdivision (n);

15. The actual cumulative ampere-hour usage expended during the preceding calendar year, if operation occurred;
16. Information on calculations for the building enclosure envelope pursuant to paragraph (e)(1), including locations and dimensions of openings that are counted towards the 3% allowance;
17. A statement that the owner or operator, or personnel designated by the owner or operator, has completed a District-approved training program pursuant to subdivision (j); and
18. A statement by the owner or operator as to whether the source has complied with the provisions of this section.

**Appendix 3 – Content of Ongoing Compliance Status and Emission Reports.**

Ongoing compliance status and emission reports shall, at a minimum, contain the following information:

1. The company name and address of the source;
2. An identification of the operating parameter that is monitored for compliance determination, as required by subdivision (m);
3. The relevant emission limitation for the source, and the operating parameter value, or range of values, that correspond to compliance with this emission limitation as specified in the notification of initial compliance status required by Appendix 2;
4. The beginning and ending dates of the calendar year for the reporting period;
5. A description of the type of process performed in the source;
6. The actual cumulative rectifier usage expended during the calendar year of the reporting period, on a month-by-month basis, if the source is a hard or decorative chromium electroplating tank or chromic acid anodizing tank;
7. Updated facility-wide emissions, if applicable;
8. Hexavalent chromium and trivalent chromium emissions data in grams per year for the reporting period;
9. Sensitive receptor distances, if they are located within  $\frac{1}{4}$  of mile from the center of the facility and facility maximum operating schedule (more than or less than or equal to 12 hours per day), if changed since submittal of the initial compliance status report or subsequent ongoing compliance status and emission reports. Sensitive receptor distances shall be measured using methods provided in paragraph (h)(2);
10. A summary of any excess emissions or exceeded monitoring parameters as identified in the records required by paragraph (o)(6);
11. A certification by a responsible official that the inspection and maintenance requirements in subdivision (n) were followed in accordance with the operation and maintenance plan for the source;
12. If the operation and maintenance plan required by subdivision (n) was not followed, an explanation of the reasons for not following the provisions, an assessment of whether any excess emissions and/or monitoring parameter excesses are believed to have occurred, and a copy of the record(s) required by paragraph (o)(1) documenting that the operation and maintenance plan was not followed;



13. If applicable, results of periodic smoke tests demonstrating capture efficiency of an add-on air pollution control device or add-on non-ventilated air pollution control device conducted during the reporting period;
14. A description of any changes in monitoring, processes, or controls since the last reporting period;
15. A statement that the owner or operator, or personnel designated by the owner or operator has, within the last 2 years, completed a District-approved training program pursuant to subdivision (j);
16. Add-on air pollution ventilation measurements conducted during the most recent District-approved passing source test that include:
  - (A) The velocity of each collection slot, including the velocity values that would be 95% and 90% of the source-tested value.
  - (B) For push-pull systems, the pressure of each push air manifold, including the pressure values that would be 110%, 105%, 95%, and 90% of the source-tested value;
17. A summary of any pollution prevention measures that the facility has implemented that eliminates or reduces the use of hexavalent chromium in the chromium electroplating or chromic acid anodizing process an associated process tanks.
18. Updated information on calculations for the building enclosure envelope pursuant to paragraph (e)(1), including locations and dimensions of openings that are counted towards the 3% allowance or 5% allowance of a permanent total enclosure.
19. The name, title, and signature of the responsible official who is certifying the accuracy of the report; and
20. The date of the report.

**Appendix 4 – Summary of Inspection and Maintenance Requirements**

**Table 4-1:**  
**Summary of Inspection and Maintenance Requirements for Sources Using Add-on**  
**Air Pollution Control Device(s) or Add-On Non-Ventilated Air Pollution Control**  
**Device(s) (cont)**

<b>Control Technique/Equipment</b>	<b>Inspection and Maintenance Requirements</b>	<b>Frequency</b>
Composite mesh-pad (CMP) system.	1. Visually inspect device to ensure that there is proper drainage, no unusual chromic acid buildup on the pads, and no evidence of chemical attack that affects the structural integrity of the device.	1. Once per quarter.
	2. Visually inspect back portion of the mesh pad closest to the fan to ensure there is no breakthrough of chromic acid mist.	2. Once per quarter.
	3. Visually inspect ductwork from tank to the control device to ensure there are no leaks.	3. Once per quarter.
	4. Perform washdown of the composite mesh-pads in accordance with manufacturer's recommendations.	4. Per manufacturer.
Packed-bed scrubber (PBS)	1. Visually inspect device to ensure there is proper drainage, no unusual chromic acid buildup on the packed-beds, and no evidence of chemical attack that affects the structural integrity of the device.  2. Visually inspect back portion of the chevron blade mist eliminator to ensure that it is dry and there is no breakthrough of chromic acid mist.  3. Same as number 3 above for CMP system.  4. Add fresh makeup water to the packed-bed <sup>A</sup> .	1. Once per quarter.  2. Once per quarter.  3. Once per quarter.  4. Whenever makeup is added.

<sup>A</sup> Horizontal packed-bed scrubbers without continuous recirculation must add make-up water to the top of the packed-bed.

**Table 4-1:  
Summary of Inspection and Maintenance Requirements for Sources Using Add-on  
Air Pollution Control Device(s) or Add-On Non-Ventilated Air Pollution Control  
Device(s) (cont)**

<b>Control Technique/Equipment</b>	<b>Inspection and Maintenance Requirements</b>	<b>Frequency</b>
PBS/CMP system	<ol style="list-style-type: none"> <li>1. Same as for CMP system.</li> <li>2. Same as for CMP system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Once per quarter.</li> <li>2. Once per quarter.</li> </ol>
	<ol style="list-style-type: none"> <li>3. Same as for CMP system.</li> <li>4. Same as for CMP system</li> </ol>	<ol style="list-style-type: none"> <li>3. Once per quarter.</li> <li>4. Per manufacturer.</li> </ol>
Fiber-bed mist eliminator <sup>B</sup>	<ol style="list-style-type: none"> <li>1. Visually inspect fiber-bed unit and prefiltering device to ensure there is proper drainage, no unusual chromic acid buildup in the units, and no evidence of chemical attack that affects the structural integrity of the devices.</li> <li>2. Visually inspect ductwork from tank or tanks to the control device to ensure there are no leaks.</li> <li>3. Perform washdown of fiber elements in accordance with manufacturer's recommendations.</li> </ol>	<ol style="list-style-type: none"> <li>1. Once per quarter.</li> <li>2. Once per quarter.</li> <li>3. Per manufacturer.</li> </ol>
High Efficiency Particulate Arrestors filter (HEPA)	<ol style="list-style-type: none"> <li>1. Look for changes in the pressure drop.</li> <li>2. Replace HEPA filter.</li> </ol>	<ol style="list-style-type: none"> <li>1. Once per week.</li> <li>2. Per manufacturer's specifications or District's requirement.</li> </ol>

<sup>B</sup> Inspection and maintenance requirements for the control device installed upstream of the fiber-bed mist eliminator to prevent plugging do not apply as long as the inspection and maintenance requirements for the fiber-bed unit are followed.

**Table 4-1:  
Summary of Inspection and Maintenance Requirements for Sources Using Add-on  
Air Pollution Control Device(s) or Add-On Non-Ventilated Air Pollution Control  
Device(s) (cont)**

<b>Control Technique/Equipment</b>	<b>Inspection and Maintenance Requirements</b>	<b>Frequency</b>
Chromium Tank Covers	<ol style="list-style-type: none"> <li>1. Drain the air-inlet (purge air) valves at the end of each day that the tank is in operation.</li> <li>2. Visually inspect access door seals and membranes for integrity.</li> <li>3. Drain the evacuation unit directly into the electroplating tank or into the rinse tanks (for recycle into the electroplating tank).</li> </ol>	<ol style="list-style-type: none"> <li>1. Once per day.</li> <li>2. Once per week.</li> <li>3. Once per week.</li> </ol>
Pitot tube	Backflush with water, or remove from the duct and rinse with fresh water. Replace in the duct and rotate 180 degrees to ensure that the same zero reading is obtained. Check Pitot tube ends for damage. Replace Pitot tube if cracked or fatigued.	Once per quarter.
Ampere-hour meter	Install and maintain per manufacturer's specifications.	Per manufacturer.
Temperature Gauge	1. Install and maintain per manufacturer's specification at each Tier I, II, and III Hexavalent Chromium Tank.	1. Per manufacturer.
	2. Calibrated or confirmed to be accurate.	2. Once per year
Temperature Data Logger	1. Install and maintain per manufacturer's specification at each Tier II Hexavalent Chromium Tank.	1. Per manufacturer
	2. Calibrated or confirmed to be accurate.	2. Per manufacturer
Collection Slots and Push Air Manifolds for Push-Pull Systems	1. Visually inspect slots and push air manifolds to confirm that there are no obstructions or clogs.	1. Once per week.
	2. Clean slots or push air manifolds.	2. Once every 180 days.
	3. Measure slot velocity of each slot and pressure at each push air manifold using a hot-wire anemometer, vein anemometer, or	3. Once every 180 days.

	approved device	
Air Flow Gauges	Install and maintain per manufacturer's specifications.	Per manufacturer

**Table 4-2**  
**Summary of Inspection and Maintenance Requirements for Sources Using**  
**Chemical or Mechanical Fume Suppressants**

<b>Equipment</b>	<b>Inspection and Maintenance Requirement for Monitoring Equipment</b>	<b>Frequency</b>
Ampere-hour meter	Install and maintain per manufacturer's specifications.	Per manufacturer.
Stalagmometer/ Tensiometer	Calibrate and maintain per manufacturer's specifications.	Per manufacturer.

**Appendix 5 – Smoke Test for Chromium Tank Covers.****SMOKE TEST TO VERIFY THE SEAL INTEGRITY OF COVERS DESIGNED TO REDUCE CHROMIUM EMISSIONS FROM CHROMIUM ELECTROPLATING, CHROMIC ACID ANODIZING, AND TIER III HEXAVALENT CHROMIUM TANKS****1. Applicability and Principle**

- 1.1 **Applicability.** This method is applicable to all Tier III Hexavalent Chromium Tank where a chromium tank cover or add-on non-ventilated air pollution control device is used on the tank for reducing chromium emissions.
- 1.2 **Principle.** During electrolytic operations, gas bubbles generated during the process rise to the surface of the tank liquid and burst. Non-electrolytic tanks that are either heated or air sparged generate bubbles that rise to the surface. Upon bursting, tiny droplets of chromic acid (chromium mist) or hexavalent chromium laden become entrained in the air above the tank. Because the chromium tank cover completely encloses the air above the tank, the chromium mist either falls back into the solution because of gravity or collects on the inside walls of the chromium tank cover and runs back into the solution. A semi-permeable membrane allows passage of the hydrogen and oxygen out of the chromium tank cover. A smoke device is placed inside the chromium tank cover to detect leaks at the membrane, joints, or seals.

**2. Apparatus**

- 2.1 **Smoke device.** Adequate to generate 500 to 1000 ft<sup>3</sup> of smoke/20 ft<sup>2</sup> of tank surface area.
- 2.2 **Small container.** To hold the smoke device.

**3. Procedure**

Place the small container on a stable and flat area at center of the chromium tank cover (you can use a board and place it on the buss bars). Place the smoke device inside the container. After activating the smoke device, quickly close the access door to avoid smoke from escaping. Let smoke device fill the entire space under the chromium tank cover with smoke. Observe for leaks of smoke from each seal, joint, and membrane of the chromium tank cover. Record these observations including the locations and a qualitative assessment of any leaks of smoke.

When all seals, joints, and membranes have been observed, evacuate the unit to remove the smoke from the chromium tank cover.

**Appendix 6 – Approval of Alternatives for Specific Requirements**

Location within Rule	Requirement	Description of Authority	Approving Agency	Concurring Agency
(a)	Applicability	Assisting an owner or operator in determining whether a facility is subject to the ATCM	District	
(h)	Standards	Approving alternative standards	District	U.S. EPA
(k)(1)	Performance Test Requirement	Waiving a performance test requirement	District	
(k)(3)	Use of Existing Performance Tests	Approving the use of existing performance test results to demonstrate compliance, based on the “Description of the Technical Review Protocol for Performance Tests of California Chrome Plating Sources” (see Attachment 2 of the July 10, 1998 memorandum from John S. Seitz entitled, “Delegation of 40 CFR Part 63 General Provisions Authorities to State and Local Air Pollution Control Agencies.”)	District	
(k)(2)	Test Method	Approving site-specific alternatives to test methods	District for minor <sup>1</sup> or intermediate <sup>2</sup> changes	U.S. EPA for major <sup>3</sup> changes, and ARB
(k)(4)	Pre-Test Protocol	Approving pre-test protocols	District	
(k)(5)	Test All Emission Points	Waiving the requirement to test all emission points	District	
(m)	Parameter Monitoring	Approving site-specific changes in monitoring methodology	District for minor <sup>1</sup> or intermediate <sup>4</sup> changes	U.S. EPA for major <sup>3</sup> changes
(n)	Inspection and Maintenance Requirements	Approving site-specific changes to inspection and maintenance requirements	District	
(n)	Operation and Maintenance Plans	Approving or requiring site-specific changes to operation and maintenance plans	District	
(o)(1)-	Recordkeeping	Waiving or altering	District	U.S. EPA for

Location within Rule	Requirement	Description of Authority	Approving Agency	Concurring Agency
(o)(11)		recordkeeping requirements		major <sup>3</sup> changes
(o)(12)	Retention of Records	Waiving or altering the requirement to retain records for 5 years	District	U.S. EPA for major <sup>3</sup> changes
(p)	Reporting	Waiving or altering reporting requirements	District	U.S. EPA <sup>5</sup> for major <sup>3</sup> changes

- 1 Minor change to a test method or monitoring is a modification to a federally enforceable test method or monitoring that (a) does not decrease the stringency of the emission limitation or standard or the compliance and enforcement measures for the relevant standard; (b) has no national significance (e.g., does not affect implementation of the application regulation for other affected sources, does not set a national precedent, and individually does not result in a revision to the test method or monitoring requirement); and (c) is site specific, made to reflect or accommodate the operation characteristics, physical constraints, or safety concerns of an affected source.
- 2 Intermediate change to a test method is a within-method modification to a federally enforceable test method involving “proven technology” (generally accepted by the scientific community as equivalent or better) that is applied on a site-specific basis and that may have the potential to decrease the stringency of the associated emission limitation or standard. Intermediate changes are not approvable if they decrease the stringency of the standard.
- 3 Major change to a test method or monitoring is a modification to a federally enforceable test method or federally required monitoring that uses unproven technology or procedures or is an entirely new method (sometimes necessary when the required test method is unsuitable).
- 4 Intermediate change to monitoring is a modification to federally required monitoring involving “proven technology” (generally accepted by the scientific community as equivalent or better) that is applied on a site-specific basis and that may have the potential to decrease the stringency of the compliance and enforcement measures for the relevant standard.
- 5 U.S. EPA concurrence is not needed for adjustments made according to paragraph (p)(6).



**Appendix 7 – Information Demonstrating an Alternative Method(s) of  
Compliance Pursuant to Subdivision (i)**

The owner or operator of a facility applying for approval of an alternative method of compliance must submit to the District the following information.

1. A source test as specified in subdivision (i). The test shall have been conducted in a manner consistent with normal electroplating or anodizing operations.
2. A demonstration that the alternative method achieves an equal or greater amount of reductions in hexavalent chromium emissions than would be achieved with direct compliance with the applicable emission rate in paragraphs (h)(2) or (h)(4).
3. Calculations based on scientifically valid risk assessment methodologies demonstrating that the alternative method results in reducing risk equally or greater than the risk reduction that would be achieved by direct compliance with the applicable emission rate. A facility using in-tank controls shall only be modeled as a volume source and the resulting risk compared to the same facility modeled as a point source.
4. Documentation which demonstrates that the method is enforceable, including an operation and maintenance plan, an inspection and maintenance schedule, and a recordkeeping plan.
5. A demonstration that the facility is at least 25 meters from a sensitive receptor.

**Appendix 8 – Smoke Test to Demonstrate Capture Efficiency for an Add-on Air Pollution Control Device(s) Pursuant to Paragraph (k)(6).**

1. Applicability and Principle

1.1 Applicability. This method is applicable to all hard and decorative chromium electroplating and chromic acid anodizing operations where an add-on air pollution control device is used to reduce chromium emissions from the chromium electroplating or anodizing tank.

1.2 Principle. During chromium electroplating or anodizing operations, bubbles of hydrogen and oxygen gas generated during the process rise to the surface of the tank liquid and burst. Upon bursting, tiny droplets of chromic acid (chromium mist) become entrained in the air above the tank. Collection of this chromium mist is achieved with the add-on air pollution control device for the tank(s) where chromium emissions are reduced downstream. Emission control efficiency at the exhaust of an add-on control device is related to capture efficiency at the inlet of the add-on air pollution control device. For this reason, it is imperative that 100% capture efficiency is maintained. A smoke device placed within the area where collection of chromic mist by the add-on air pollution control device occurs reveals this capture efficiency.

2. Apparatus

2.1 Smoke Generator. Adequate to produce a persistent stream of visible smoke.

3. Testing Conditions

The smoke test shall be conducted while the add-on air pollution control device is in normal operation and under typical draft conditions representative of the facility's chromium electroplating and/or chromic acid anodizing operations. This includes cooling fans and openings affecting draft conditions around the tank area including, but not limited to, vents, windows, doorways, bay doors, and roll-ups. The tank shall be in full operation during the smoke test with parts being processed (e.g. air sparging turned on). The smoke generator must be at full generation during the entire test and operated according to manufacturer's suggested use.

3. Procedure

The smoke test shall be conducted over a minimum twelve point matrix evenly distributed over the entire liquid surface of each chromium electroplating or chromic acid anodizing tank vented to the add-on air pollution control device. Place the aperture of the smoke device at each point of the matrix at a height within

one inch above the tank top. Observe collection of the smoke to the collection location(s) of the add-on air pollution control device. An acceptable smoke test shall demonstrate a direct stream to the collection location(s) of the add-on air pollution control device without meanderings out of this direct path. Record these observations at each of the points on the matrix providing a qualitative assessment of the collection of smoke to the add-on air pollution control device. The test shall also be documented by photographs or video at each point of the matrix.

**Appendix 9 – Surface Tension Measurement Procedure for a Stalagmometer**

The stalagmometer shall first be properly cleaned before being used for the first time and after a period of storage. Properly clean the stalagmometer using the following procedure:

1. Set up stalagmometer in stand in a fume hood.
2. Place a clean 150 mL beaker underneath the stalagmometer then fill with reagent grade concentrated nitric acid. Immerse bottom tip (approximately ½”) of stalagmometer into the beaker.
3. Squeeze rubber bulb and pinch at the arrow up (1) position to collapse. Place bulb end securely on top end of stalagmometer. Carefully draw the nitric acid by pinching the arrow up (1) position until the level is above the top etched line.
4. Allow nitric acid to remain in stalagmometer for 5 minutes and then carefully remove the bulb allowing the acid to completely drain.
5. Fill a clean 150 mL beaker with distilled or deionized water. Using the rubber bulb per the instructions in Step #3, rinse and drain stalagmometer with deionized or distilled water until the inside is “water break” free.
6. Fill a clean 150 mL beaker with isopropyl alcohol. Again using the rubber bulb per Step #3, rinse and drain stalagmometer twice with isopropyl alcohol and allow the stalagmometer to dry completely.
7. Take a sample of the solution to be tested and adjust the solution to room temperature. Measure the specific gravity and record reading.
8. Fill a clean 150 mL beaker with solution to be tested. Immerse bottom end of stalagmometer into the beaker. Fill the stalagmometer per instructions in Step #3, making sure that the solution level is above the top etched line.
9. Raise the stalagmometer so that the bottom end is completely out of solution. Remove bulb and immediately place a finger on the top end of the stalagmometer. Carefully use the finger to bring the solution level down to the top etched line. Do not release finger at this time.
10. “Wipe” the excess solution on the lower tip by touching it against the side of the beaker.
11. Release fingertip to allow solution to drain and count number of drops until the level reaches the bottom etched line.

**Calculations for Surface Tension**

$$\text{Surface tension (dynes/cm)} = \frac{S_w * N_w * D}{N * D_w}$$

$S_w$  = Surface tension of water at 25°C or 77°F (72.75 dynes/cm)

$N_w$  = water drop number etched on instrument

$D$  = measured specific gravity (g/ml)

$N$  = # of solution drops

$D_w$  = water density (1.0 g/mL)

**PRECAUTIONS:**

1. Make sure the stalagmometer is clean (no sludge or film)
2. No chips, cracks, etc
3. Vertical placement
4. No vibration
5. 20 drops per minute rate (10 dynes/cm) +/- 1 drop per minute
6. Performance checked with water. The number of drops etched on the instrument shall be verified with deionized water to +/- 1 drop. If the number of drops are not within 1 drop, then the stalagmometer shall be cleaned. If the cleaning process does not bring the drop count within 1 drop of the etched number on the instrument, then the operator shall:
  - a) Purchase a new stalagmometer; or
  - b) Use the number of drops recorded for the distilled water run as ( $N_w$ ) in the equation instead of the number of drops etched on the stalagmometer.
7. Sample at room temperature.

**Appendix 10 – Tier II and Tier III Hexavalent Chromium Tank Thresholds**

Tier II tank hexavalent chromium concentrations shall remain in concentration range for the specified temperature and be required to comply with subparagraph (h)(4)(B). Tanks that exceed hexavalent chromium concentration for a corresponding temperature shall be considered a Tier III tank and shall be required to comply with subparagraph (h)(4)(A).

<b>Temperature (° F)</b>	<b>Tier II Tank Concentration (ppm)</b>	<b>Tier III Tank Concentration (ppm)</b>
=>140 to <145° F	=>5,160 to <10,320	=>10,320
=>145 to <150° F	=>2,720 to <5,450	=>5,450
=>150 to <155° F	=>1,450 to <2,890	=>2,890
=>155 to <160° F	=>763 to <1,525	=>1,525
=>160 to <165° F	=>390 to <780	=>780
=>165 to <170° F	=>180 to <360	=>360
=>170° F	=>100 to <200	=>200